**Waste 2025 Conference Abstract Submission**

**(for face-to-face Conference which includes live broadcast)**

From Policy to Possibilities: Ideas for Advancing Australia's Car-Recycling Industry

*My presentation is relevant to the following topic area(s).*

***\*\*\* SELECT A MAXIMUM OF 4 TOPIC AREAS ONLY \*\*\****

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| [ ]  | **Aboriginal community waste management** (projects, results, planning, what else to be done) | [ ]  | **National, state and local issues** (policies, strategies, responses, opportunities, challenges) |
| [x]  | **Circular economy** (case studies, right to repair, material traceability, new materials targeted, climate change impacts) | [ ]  | **Organics** (food only vs FOGO, implementation strategies, new services) |
| [ ]  | **Collections** (innovations, new systems, vehicles, challenges) | [ ]  | **Plastics** (plastics recycling, plastics recovery schemes, small & large scale plastics projects) |
| [ ]  | **Container Deposit Schemes** (new schemes, new containers, innovations) | [x]  | **Problem waste** (solar panels, batteries, textiles) |
| [ ]  | **Disaster waste management** (bushfires, floods, pandemic) | [ ]  | **Procurement, tenders & contracts** (from start to finish, procurement approaches, tender processes and waste service contracts) |
| [ ]  | **Economics** (business cases, data gathering, planning for financial impacts, reviews & analyses) | [x]  | **Product stewardship & extended producer responsibility** (current & planned schemes, new materials to be captured by schemes, local schemes for recovery) |
| [ ]  | **Education** (behaviour change, community engagement, social media, planning FOGO education) | [ ]  | **Project Planning** (projects currently planned, challenges and barriers, planning controls and conditions, project management) |
| [ ]  | **Energy from waste** (projects, case studies) | [ ]  | **Regional issues** (regional responses to waste settings, collaboration, joint projects) |
| [ ]  | **Hazardous waste** (asbestos, clinical & medical, illegally dumped hazardous waste, systems for managing hazardous materials) | [x]  | **Resource recovery** (recycling, C&I/C&D, organics & other material recovery, emerging markets, insights & updates) |
| [ ]  | **Infrastructure & planning** (FOGO capacity, new material recovery planning) | [ ]  | **Social enterprise** (new entrants, recent endeavours, case studies) |
| [ ]  | **Innovative projects** (sustainability innovations, artificial intelligence, case studies) | [x]  | **Strategic waste planning & policy** (stakeholder engagement, strategy development, waste policy impacts and opportunities) |
| [ ]  | **Landfill & facility management** (facility operations management, strategic planning, compliance) | [ ]  | **Technology in waste management** (AI, early adopters, innovations, improvements to services due to technology, barriers) |
| [x]  | **Legislation, regulations & levies** (major updates, monitoring & enforcement, response to changes in regulations) | [ ]  | **Waste projects** (project management, business cases, grant delivery, case studies) |
| [ ]  | **Litter & illegal dumping** (prevention, new management systems & innovative & smart initiatives, surveillance) | [ ]  | **Other** |

[ ]  **Proposed Panel Discussion** -Proposed topic & participants suitable for key issues that may be addressed by a Panel of presenters. For this category suggest your topic & who you will arrange to attend and present (maximum of 5 panel members).

**Presenter information**

**Presenter name:** Dr. Sarfraz Ali Kyani

**Presenter position:** Researcher and Lecturer

**Presenter organisation:** Queensland University of Technology, QUT

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**Biography**

Dr. Sarfraz Ali Kyani is a researcher and academic at Queensland University of Technology (QUT), Brisbane, Australia. He was awarded the prestigious Australian Research Council (ARC) Scholarship for the project ‘Recycling of Automotive Parts for Additive Manufacturing.’ In collaboration with QUT and the Motor Trades Association of Queensland (MTAQ), he actively investigates innovative solutions for reducing automotive plastic waste.

Dr. Kyani's PhD research focused on automotive plastic recycling, involving an in-depth study with key stakeholders in the Australian automotive industry to explore pathways for transforming plastic waste into valuable resources. Due to his impactful work in the auto recycling sector, he was nominated as a Finalist for the Innovation Award by the Motor Trades Association in 2023. With over 15 years of experience spanning academia and the corporate sector, Dr. Kyani is a dedicated social entrepreneur and a passionate advocate for fostering economic transformation through sustainable entrepreneurship.

**Abstract Summary**

Automotive waste, mainly plastic from end-of-life vehicles (ELVs), is a major environmental issue in Australia, with 160,000 tons of car plastic ending up in landfills annually. This study used conjoint analysis with 68 stakeholders from the automotive industry, including car wreckers, policymakers, and environmental experts, to assess policy options like Extended Producer Responsibility (EPR), recycling fees, and export bans on car plastics. Results showed strong support for strict EPR regulations, export bans, and recycling fees to boost recycling infrastructure. Implementing these policies could cut automotive plastic waste by 50%, creating jobs and supporting a circular economy through innovation and industry collaboration.

**Abstract**

Automotive waste poses a significant environmental challenge in Australia, where end-of-life vehicles ELVs generate considerable amounts of non-metallic residues, primarily plastics. According to a study, 160,000 tons of car plastic end up in landfills annually in Australia. Despite existing recycling practices focused on metals, plastic components are frequently sent to landfills due to limited recycling infrastructure and the complexity of automotive plastics. Addressing this issue requires innovative policy interventions that align with sustainability and circular economy principles.

This study presents findings from an experimental conjoint analysis involving 68 key stakeholders from the Australian automotive industry. The stakeholders were divided into three groups: car wreckers and repairers, decision makers such as auto industry associations and policymakers in the government, and opinion leaders including environmentalists, plastic experts, and entrepreneurs. The stakeholders evaluated various policy configurations aimed at enhancing automotive plastic recycling, focusing on Extended Producer Responsibility (EPR), recycling fees, and export bans on car plastics. The experiment simulated real-world decision-making by asking stakeholders to weigh trade-offs among policy options based on their effectiveness and feasibility.

Results indicate that stringent EPR policies, combined with a ban on the export of automotive plastics and moderate-to-high recycling fees, garnered the highest stakeholder support. Specifically, 72% of stakeholders supported strict EPR regulations, while 68% favoured a complete export ban on unprocessed automotive plastics. Additionally, 64% agreed that implementing a recycling fee of $1000 to $1200 per vehicle at registration would provide essential funding for recycling infrastructure. These policy combinations reflect a shared recognition of the need for regulatory accountability among producers and importers, improved recycling infrastructure, and enhanced local processing capabilities. A strict export ban was particularly favoured due to its potential to incentivise domestic recycling initiatives and reduce environmental leakage.

The study's implications extend across the automotive industry and policymaking spheres. If fully implemented, these policy measures could reduce automotive plastic landfill contributions by up to 50% within a decade, according to stakeholder projections. Establishing a national car-recycling framework could process an estimated 80,000 tons of automotive plastic annually, driving job creation in the recycling sector while promoting environmental sustainability. The analysis highlighted that stakeholder preferences varied significantly based on their roles, with car wreckers favouring less restrictive policies and decision-makers advocating for stricter regulations. This divergence highlights the need for tailored policy frameworks that balance environmental goals with operational feasibility. First, advancing Australia's automotive recycling industry requires a coordinated policy approach emphasising innovation in recycling technologies, responsible corporate behaviour, and active engagement with industry stakeholders. Moreover, the study provides workable solutions for advancing the car recycling industry toward a circular economy, such as fostering entrepreneurial action in recycling ventures to stimulate economic activity while addressing the environmental impacts of automotive waste. Moreover, reducing unauthorised car recycling operations through stricter policy enforcement could promote a more transparent and sustainable industry.

By integrating policy enforcement with economic incentives, such as tax credits for recycling companies, Australia could increase recycling rates by up to 50%, as projected by industry stakeholders. Expanding public-private partnerships and fostering innovation through research grants could further enhance the automotive recycling ecosystem. The study also revealed that promoting industry collaboration and stakeholder engagement can enhance policy acceptance and effectiveness. Investing in recycling infrastructure, encouraging technological innovation, and implementing educational programs were identified as key enablers for building a sustainable automotive recycling ecosystem. The study further explores unique business opportunities within the plastic recycling industry.